certain amount of pressure on the cord, and it is not relieved, the patient being treated expectantly, the cord will in a short time degenerate, and then there is very little to be expected in the way of recovery. It seemed to him if he were in a position where he had a fracture of the spinal column and had to decide the question whether he would rather lie on a water bed for a time and then die as the result of bedsores, cystitis, etc., or have his neural canal opened and dealt with, he should certainly take the chances and have his canal opened. He thought that on the whole, if one gets one per cent. of recoveries one is fortunate.

He recalled one case where he did an operation for this condition. The man had a fracture of the lower portion of his spinal column and he is now putting up gutters and tin roofs through the country!

He had opened many canals with indifferent results, but on the whole he thought this procedure offers to the majority of cases the best chance of recovery. He could not see, in these cases, what was to be gained by treating them expectantly. By waiting a degeneration of the cord is likely to occur, and when that occurs, as the result of pressure, little can be later accomplished by going into the neural canal. He had tried both ways, and while the results are not brilliant in either, he had obtained better results by promptly relieving the pressure.

DR. ALFRED R. ALLEN said that it was doubtful whether in fracture-dislocation of the spinal column, the degeneration of the cord which is found in cases which have lived some time after the accident, is due to unrelieved pressure. He mentioned a case of gunshot wound where the bullet impinged instantaneously on the dura, not enough to even ruffle the surface. A laminectomy revealed the cord apparently normal. The case died, and the cord at autopsy was found to be just like jelly for at least three centimeters. In this case there was a pressure which had been brought to bear and then instantly removed, and yet there was complete degeneration.

PUNCTURED FRACTURE OF THE SKULL.

DR. GEORGE G. ROSS read a paper with the above title, for which see page 108.

DR. ADDINELL HEWSON said that in view of the statement made by Dr. Ross that the cerebral abscess is often not recognized, he would report a case which in the last few days came under his observation. A man died in one of the hospitals in Philadelphia from pulmonary tuberculosis with intestinal involvement. The body was unclaimed and came to the Anatomical Board and was distributed to one of the colleges. After the injection of the body the brain was removed, and there was found a nail nearly 2½ inches in length which had perforated the sagittal suture near the bregma, and an abscess was found about this nail probably holding as much as an egg. He questioned the resident of the hospital—he did not even know that there was any wound about the man's head. The nail did not penetrate the brain, it was between the longitudinal sinus and the brain substance involving the dura and the arachnoid.

He mentioned this case here as one where there were no symptoms of any kind, and the resident who attended the man for six months knew nothing whatever about this condition.

Dr. G. G. Davis said that he had seen a couple of cases of these punctured wounds, one a man who received a punctured wound of the orbit by a metal hook which penetrated the brain, going upwards and backwards. The point of the hook struck the dura in the upper posterior portion of the vault of the skull. This case occurred while he was a resident at the Pennsylvania Hospital. The man died from septic cerebritis. A second case was under his care some fourteen years ago for the first time. The patient, a young man, was riding on a bicycle and was struck by a wagon, and something penetrated his eye. The left eye was lacerated and the wound entered through the top of the orbit and went some distance into the brain. The eye was removed, as well as some pieces of glass, and for several days thereafter there was quite an amount of brain matter discharged. He introduced a drainage tube and simply washed the part out with boracic solution. That young man recovered, and he heard nothing from him until within a few months ago, when he came back with the report that he had attacks, which he took to be epileptic, which were preceded by a very offensive subjective odor, and he likewise complained of a headache. For this he was placed on bromides, and he has had no attacks since, although he only takes ten grains of bromide of sodium once a day. This is an example of the fact that if the brain is injured very markedly, and if recovery ensues, the patient later shows some nervous trouble.

HERNIA CEREBRI.

Dr. Macy Brooks reported a case of recovery from hernia cerebri involving the frontal lobe, resulting from extensive fracture, as follows: A boy of 11 years, rather low order of intellect, was kicked in the head by a horse.

When first seen there was a large gaping wound over the left brow from which blood and brain matter were oozing.

An incision was made from the glabella, inclining upwards towards the upper temporal region, exposing a compound comminuted fracture. Fragments of bone were removed which included the crista galli and a large portion of the frontal bone of that side; this exposed an opening in the dura three-fourths of an inch in diameter; the dura had been punched out over this opening and driven into the gray matter. Upon probing this cavity with the little finger he felt something hard in the brain substance about an inch in from the cortex, parallel with the base of the brain. Upon introducing a pair of forceps he extracted a fragment of bone and a matted lock of hair. The boy being very dirty, the accident having happened in a stable, and there being extensive laceration of brain matter, he did not close the opening in the membranes with a pericranial flap. After removing all loose fragments of bone and trimming up the edges, the wound was well irrigated with hot saline solution, a strip of iodoform gauze was introduced and the wound dressed with gauze and a firm bandage.

The patient was not unconscious at any time. He recovered nicely from the operation. On the third day the gauze was removed from the cavity. Its removal was followed by a flow of a considerable quantity of disorganized brain matter. A small drain was reintroduced; this was removed in twenty-four hours. By this time the brain had started to protrude. There was a hernia about the size of a pigeon egg. This upon the advice of Dr. W. J. Taylor was dressed with a ring of gauze to avoid pressure and dry gauze over the ring. The skin edges were touched at each dressing with silver stick and as the skin grew in around, the hernia, the protruding gray matter was gradually cut off until the opening was entirely closed. Apparently the boy's mental condition has not changed in any way since the accident. The wound healed in forty-eight days.

Dr. G. G. Davis said that this case is simply another which shows that it is apparently unnecessary to operate for the cure of hernia cerebri, and in substantiation of that position he mentioned a case somewhat similar to this, in which he saw a hernia cerebri on the vault of a skull from a fracture in which the protrusion of the brain was approximately 1½ inches long and oval in shape. Gauze was placed around it very much as in Dr. Brook's case, only it was wet with alcohol. He thought that the alcohol tends to tan and shrivel and dessicate the hernia cerebri. In a few weeks contraction took place and the skin covered it. Unfortunately the child, which was quite young, was said later to be completely blind. In the majority of these cases some decrease in the mentality of the patient is later to be expected.

Dr. John H. Gibbon called attention to the portion of bone which had been driven in. This recalled to his mind a case he had assisted Dr. Keen operate upon. The patient was a soldier who had been shot in Cuba. He was trephined shortly after his injury; he then developed epileptic attacks and was operated upon again in Cuba. He then came back to this country, was admitted to one of the large hospitals and operated upon again, an osteoplastic flap being turned back. He was then sent home as apparently incurable. He continued to have his attacks and got into pretty wretched condition. He applied for admission to the Jefferson Hospital, and through certain influences, although it was thought there was little to be done for him, he came down to be examined. It seemed that there was some pressure which might be relieved. Dr. Keen operated upon him, and about an inch and a half below the brain surface, near the median line, in the parietal region, he found a piece of bone as large as the first joint of the thumb, with about an ounce of pus around it. The patient had been trephined three times, once immediately after the injury and twice subsequently, without this bone being discovered. The necessity for exploring the brain thoroughly where there is a comminution of the skull, is most important.

Dr. Richard H. Harte said that Dr. Gibbon's remarks recalled to his mind a case at the Pennsylvania Hospital where a boy was injured, being hit over the brow with a brick, resulting in a large scalp wound. There was also a distinct transverse linear fracture with slight depression in one spot, but without any symptoms. The tendency in many cases would have been to let it take its course, but for some reason or other he felt suspicious about it. He therefore explored it and found some gritty substance, raised up part of the anterior lobe and worked back into the anterior fossa, and took out about a teaspoonful of plaster. The boy was evidently struck with a brick which had plaster on it, and this plaster had been scraped from the brick by the receding skull and deposited in the cranial cavity.

This only goes to prove that many times a fracture may be carefully explored and nothing found, while at other times something is found, and he therefore agreed with Dr. Gibbon that it is best to make a thorough exploration of these cavities.

PERMANENT DRAINAGE OF BOTH KIDNEYS THROUGH LUMBAR OPENING.

Dr. Hiram R. Loux described a case of permanent drainage of both kidneys, and exhibited the apparatus used for the collection of the urine.

Dr. John B. Roberts asked whether this apparatus would answer satisfactorily in cases of tuberculosis, extirpation of the bladder, or other conditions of the bladder where some such measure is necessary?

Dr. Hiram R. Loux said that the apparatus shown would answer very well for tuberculosis, especially where the condition of the bladder was such that it made the patient a great sufferer. In extirpation of the bladder it would hardly do, unless the ureters were removed at the same time.

This patient was instructed about the care of this apparatus, and she boils the catheters fifteen minutes and takes the utmost care with the urinal so that there is no odor attached to its use.